

WHAT IS CLAIMED IS:

1. A method of coating a body with an α -alumina layer comprising:

(i) bringing the body into contact with a hydrogen carrier gas containing one or more halides of aluminium and a hydrolysing and/or oxidizing agent while the body is at a temperature of 950-1000°C;

(ii) maintaining the oxidation potential of the CVD-reactor atmosphere prior to the nucleation of Al_2O_3 at a low level, using a total predetermined concentration of oxidizing species;

(iii) starting Al_2O_3 growth by introducing the following gases into the reaction chamber: AlCl_3 , HCl and CO_2 ;

(iv) adding a sulphur dopant after 20-60 min;

(v) repeatedly stopping the CO_2 , AlCl_3 , HCl and the sulphur dopant for intervals of 10-50 min during which TiCl_4 is allowed to enter the reactor for 1-10 min in a concentration of 1-10%; and

(vi) then reintroducing AlCl_3 , HCl , CO_2 and the sulphur dopant, in that order.

2. The method of claim 1, wherein in step (ii), the concentration of the oxidizing species is below 5 ppm.

3. The method of claim 2, wherein the oxidizing species comprises
H₂O.
4. The method of claim 1, wherein the sulphur dopant comprises H₂S.